

REFUSE DERIVED FUEL PLANT



The Refuse Derived Fuel (RDF) Plant, owned and operated by the Southeastern Public Service Authority (SPSA), processes nearly half of the solid waste generated by southeastern Virginia residents each year into fuel. Since the facility began operation in 1988, over 2.7 million tons of solid waste have been processed into fuel. The operation of the RDF Plant, one part of SPSA's waste-to-energy system, reduces dependence on fossil fuels, reduces the amount of solid waste buried in landfills and extracts energy from otherwise wasted sources.

The RDF Plant utilizes an integrated system of equipment to process solid waste into a consistent four-inch particle size. Work at the RDF Plant is performed in three, eight hour shifts. The first two shifts are devoted to production, while the third shift is devoted to maintenance. The plant utilizes systems such as electronic and visual monitoring, heat detection sensors, fire suppression, and pull cord stops on all conveyors to ensure plant and worker safety.

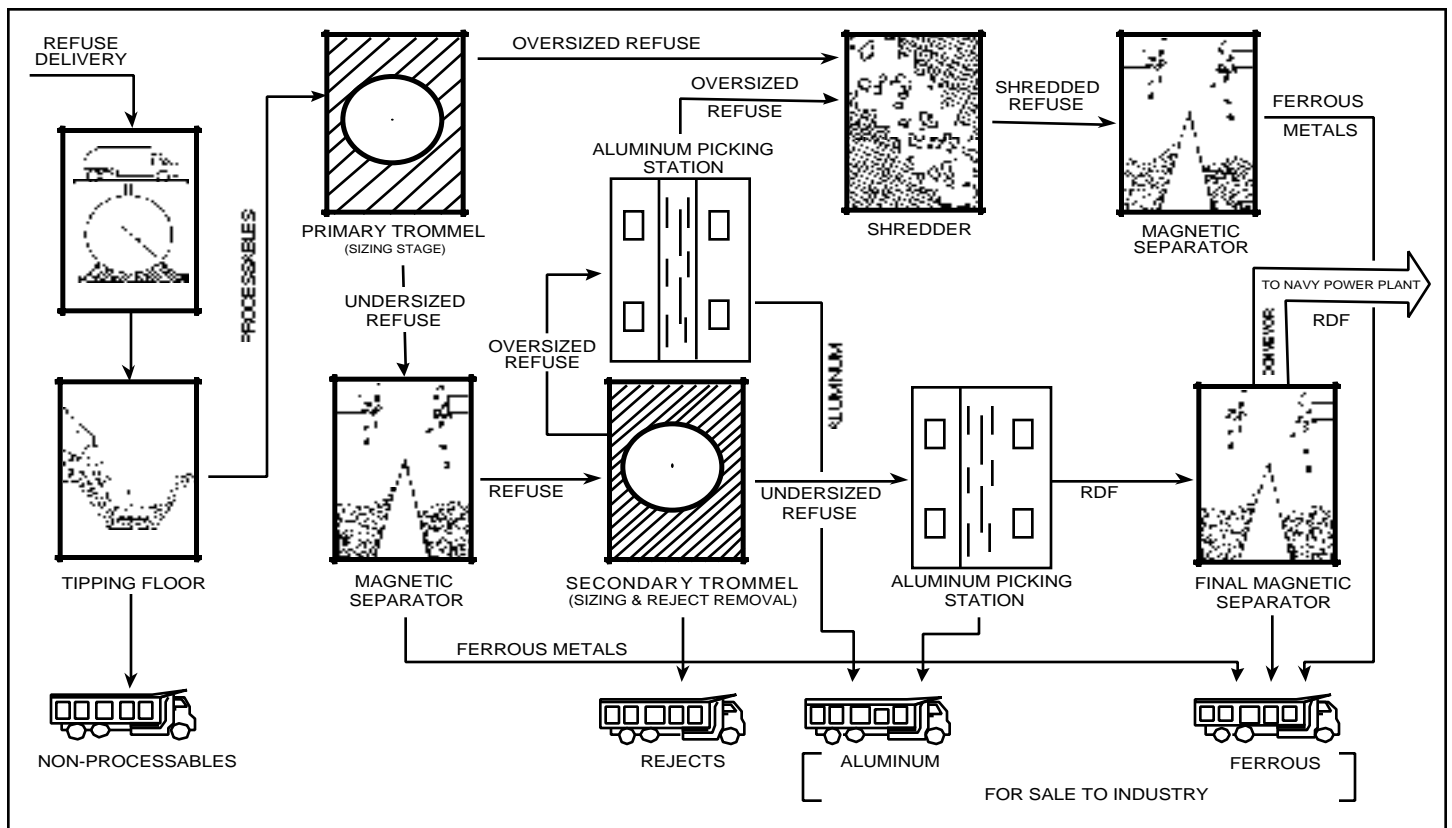
Conveyor System

Waste is deposited on the RDF Plant's 1.3-acre tipping floor for processing. Waste is moved through each stage of processing with conveyor belts. Within the plant, belts range from 25 to 84 inches wide and from 31 to 580 feet long. The longest belts, each measuring over 1,000 feet, are located outside the plant and transport refuse derived fuel to the Power Plant at the Norfolk Naval Shipyard.

In addition to the belts which transport refuse derived fuel, three conveyor belts transport nonburnable waste out of the plant to open-top trailers. One line carries ferrous materials, the second transports reject materials to be landfilled, and the third conveyor line can be used for either.



Waste is unloaded on the RDF Plant's 1.3 acre tipping floor where burnable material is separated from the nonburnable. The burnable waste is processed into fuel, and the remaining waste is loaded into SPSA vehicles to be delivered to the Regional Landfill in Suffolk.



SPSA's RDF Plant is designed to process 2,000 tons of solid waste daily. Waste is converted into fuel through a system that sizes and shreds burnable materials.

Trommelling System

From the tipping floor, waste is conveyed to the primary trommel, a drum 12 feet in diameter. Spikes within the trommel rip open bags to free waste, and six-inch holes along the walls separate waste. Items larger than six inches are transferred to the shredder.

The smaller waste is sifted through the primary trommel's six-inch holes and conveyed to the secondary trommel. As this material is carried to the trommel, it will pass under a magnetic separator to remove any ferrous materials. In the secondary trommel, nonburnable waste such as sand, gravel, glass and dirt is removed. This material is sent directly to a vehicle for transport to the Mount Trashmore II Landfill. The trommel then sifts out combustible waste such as strips of paper, cardboard and cloth. Any waste remaining inside the trommel after the two stages of separation will pass through an aluminum separation station where cans and other non-ferrous metals are removed.

Shredding System

Powered by a 1,000 horsepower electric motor, the shredder reduces incoming waste to a uniform four-inch size. The shredder uses 28 swinging hammers positioned down nine tiers of a vertical axle which rotates at 600 rpms. Each shredder is located within a containment building with blast doors and 16-inch thick walls, reinforced with steel. There are also four explosion relief vents and a Halon Suppression System to decrease the hazards of an explosion.

Magnetic Separation System

Ferrous materials are removed from the waste stream by magnetic separators. The separators are located at the outlet of the shredders, between the primary and secondary trommels and at the final refuse derived fuel discharge point. These machines use a revolving belt type magnet. The collected metal is dropped upon another conveyor which transports this material to an open top trailer. Approximately 13,000 tons of ferrous metal is extracted annually. The ferrous metal collected is recycled at SPSA's Ferrous Metal Recycling Plant in Suffolk.

Other On-Site Operations

The RDF Plant serves as the location for several other SPSA operations. In addition to producing refuse derived fuel, aluminum is removed from



As solid waste is processed into fuel, employees hand-pick about 75 tons of aluminum monthly. This material is sold for recycling.



The RDF Plant processes solid waste into fuel at the rate of about 120 tons per hour. Employees in the plant and cameras in the control room screen the waste for hazardous materials or bulky items which could impede the processing.



As solid waste moves through the RDF Plant on a system of conveyor belts, continuous checks of the material and equipment are conducted to ensure smooth plant operations.

the waste stream at the RDF Plant to be recycled. An average of 1.5 million pounds of aluminum is recovered from the waste stream each year. A household hazardous waste collection facility is operated at the RDF Plant site to ensure the proper disposal of items such as pesticides, automotive products, household cleaners, and paint products. Also, SPSA allows residents to dispose of up to five gallons of used motor oil per visit to a collection site. These free services are offered to provide residents with the opportunity to properly dispose of potentially harmful household products, to reduce the risk of hazardous waste entering the waste stream, and to help protect surface and groundwater supplies.

Refuse Derived Fuel Plant

The RDF Plant began operation in January 1988. At the plant, solid waste is processed into fuel for use at the Power Plant.

Plant Operations

- Material separated by size
- Nonburnable material is removed
- Approximately 2,000 tons of waste processed daily
- Waste is received from SPSA transfer stations, and municipal and commercial haulers

Equipment

- Three process lines
- Truck scales
- Scalehouses
- Fixed cranes
- Conveyor belts

On-Site Operations

- Field operations headquarters
- Truck maintenance shop
- Refueling station
- Truck wash facility
- Used oil recycling
- Household hazardous waste collection

Hours of Operation

- Monday - Friday, 7:00 a.m. - 4:30 p.m. (Tipping floor open)
- Saturday, 7:00 a.m. - 12:00 p.m.

For more information, call Public Information at (757) 420-4700 or the 24-hour information line at (757) 424-4297.

SPSA is a political subdivision of the state of Virginia and serves the solid waste management needs of Chesapeake, Franklin, Isle of Wight, Norfolk, Portsmouth, Southampton, Suffolk and Virginia Beach.

SPSA's mission is to manage and operate safe, cost efficient and environmentally responsible solid waste collection, processing and disposal programs and facilities for the benefit of the communities in the region. This mission is accomplished through the shared values of integrity, commitment, quality, caring and competitiveness.

Southeastern Public Service Authority

Refuse Derived Fuel Plant
4 Victory Boulevard
Portsmouth, VA 23702
(757) 399-8924

Boykins Transfer Station
State Route 671
Boykins, VA 23827

Chesapeake Transfer Station
901 Hollowell Lane
Chesapeake, VA 23320

Field Operations Headquarters
4 Victory Boulevard
Portsmouth, VA 23702

Franklin Transfer Station
State Route 671
Franklin, VA 23851

Isle of Wight Transfer Station
State Route 620
Smithfield, VA 23397

Ivor Transfer Station
U.S. Route 460
Ivor, VA 23866

Landstown Transfer Station
1925 Transfer Road
Virginia Beach, VA 23456

Norfolk Transfer Station
3136 Woodland Avenue
Norfolk, VA 23504

Oceana Transfer Station
2025 Virginia Beach Boulevard
Virginia Beach, VA 23462

Power Plant
3809 Elm Avenue
Portsmouth, VA 23709

Recycling Office
921 Professional Place
Chesapeake, VA 23320

Regional Landfill
1 Bob Foeller Drive
Suffolk, VA 23434

Regional Office
723 Woodlake Drive
Chesapeake, VA 23320

Yard Waste Processing Facility
1991 Jake Sears Road
Virginia Beach, VA 23464



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